Lecture 23
Planning Long Reports

In this lecture you will learn to

• Define the problem to be solved by studying and outlining the issues to be analyzed.
• Identify and analyze the issues that have to be analyzed during your study.
• Prepare a work plan for conducting your investigation, planning the necessary steps, estimating their timing, and deciding on the sources of information required.
• Organize the research phase of the investigation, including the identification of secondary and primary sources of data.
• Draw sound conclusions and develop practical recommendations.
• Develop a final outline and visual aid plan for the report.

Five steps in Planning a Report

• You must gather those facts and arrange them in a convenient format.
• Before putting a single word on the page, follow the following series of steps that form the foundations of any report:
  – Define the outline and purpose
  – Outline the issue for investigation
  – Prepare a work plan
  – Conduct research
  – Analyze and interpret data, draw conclusions and develop recommendations

Define the Problem

• Your first step is to write a problem statement, a statement that defines the problem your report will cover.
• The first step in writing is to narrow the scope of investigation.
• If you are writing an analytical report that interprets facts and draws conclusions about them, you generally shape your investigation by the way you define the problem to be solved.

Asking the right questions

• Often the questions have been defined by the person who authorizes the report.
• In such a case, ask questions such as
  – What needs to be determined?
  – Why is this issue important?
  – Who is involved in the situation?
  – Where is the trouble actually located?
  – How did the situation originate?
• Not all of these questions apply in every situation, but asking them helps clarify the boundaries of your investigation.
• Your analytical report is required to look at facts and draw conclusions for betterment of the situation.

**Developing the statement of Purpose**

• Prepare a written statement of purpose and then review it with the person who authorizes the study.
• The most useful way to phrase your purpose is to begin with an infinitive phrase.
• For example you are required to write a report on the use of drugs among the assembly line workers at your plant.
• In this case you might phrase the statement of purpose by saying
  – *Purpose* – To summarize the extent of substance abuse among plant employees.
• However for your analytical report, your statement of purpose might be:
  – *Purpose* – To analyze the effects of employee substance abuse on productivity and product quality, and recommend ways to counteract these effects.
• Using an infinitive phrase encourages you to take control and decide where you are going before you write.
• Before you proceed, it is important to anticipate how your audience will react.
• Double check the statement of purpose with the person who authorizes the report.

**Outlining Issues for Investigation**

• The second step in report writing is to outline the issues you plan to study.
• To organize your effort, break your problem into a series of specific questions, a process sometimes called *problem factoring*.
• Chances are, that you already use this approach subconsciously when you face a problem.
• For example, when your car doesn't start, what do you do?
• You look at various hypothesis or explanations, that can be investigated – the battery is dead, you are out of gas, the ignition system is broken etc.
• You explore each explanation until you find the cause.
Example

- Adam Soft, a software company based in Lahore, hired a consultant Mr. Sohail Munir to write a report on how to stimulate their software business in the Punjab region.
- Mr. Munir said, “We started with a general question, Why does Adam Soft have such limited success in expanding their business in the Punjab region?”
- Mr. Munir added, “We then divided the problem into three sub-questions. Are the policies followed by the software company flawed? Is the administration of the company at fault? How can the functioning of the company be improved?”
- The process of outlining helped Mr. Munir solve the problem methodically.

Developing a logical structure

- Because any structure can be factored in any way, our job is to choose the most logical way, the one that makes most sense.
- Informational and analytical studies are factored differently.
- You may use a variety of structural schemes in problem solving, as long as it does not have logical errors.
Informational Assignments

- Studies that emphasize the discovery and reporting of facts may be factored by sub-topic.
  - In order of Importance
    - Say you are reviewing five product lines. You might organize your study in the increasing order of the amount of revenue they generate.
  - Sequentially
    - If you are studying a process, present your information step by step - 1, 2, 3, ...
  - Chronology
    - When investigating a chain of events, organize the study according to what happened in January, what happened in February and so on.
  - Spatially
    - If you are studying a physical object, study it left to right, top to bottom, inside to outside.
  - Geography
    - If the location is important, factor your study geographically.
  - Categorically
    - If you are asked to review several distinct aspects of a subject, look at one category at a time, for example sales, profit, or investment.

Analytical Assignments

- Studies that focus on problem solving may be factored on the basis of hypothesis; those that focus on the evaluation of alternatives may be factored on relative merits.
- For example your problem is to determine why your company is having difficulty hiring secretaries.
- You would factor the problem by speculating about reasons; then to collect information to confirm or disapprove each reason.
- Why are we having trouble hiring secretaries?
  - Salaries are too low.
    - What do we pay our secretaries?
    - What do comparable secretaries pay their secretaries?
    - How important is pay in influencing secretaries’ job choices?
Why are we having trouble hiring secretaries?

• Our location is poor.
  – Are we accessible by public transportation and major roads.
  – Is the area physically attractive?
  – Are housing costs affordable?
  – Is crime a problem?

• The supply of secretaries is diminishing
  – how many secretaries were available five years ago as opposed to now.
  – What was the demand for secretaries five years ago as opposed to now.

Example

• When the problem is to try and locate a new dealership, the natural way is to
  subdivide your analysis to focus on the criteria.

• Where should we locate a new dealership?
  – Construction Costs
    • Location A
    • Location B
    • Location C

Where should we locate a new dealership?

• Labor availability?
  – Location A
  – Location B
  – Location C

• Transportation facilities?
  – Location A
  – Location B
  – Location C

Following the Rules of Division

• Follow the rules of division to ensure that your study will be organized in a
  logical and systematic way.
  – Divide the topic into at least two parts
    • a topic cannot be divided into only one part. For example if you
      divide a topic such as ‘Alternatives for improving Division Profits’,
      you wouldn’t look into division

• Choose a significant, useful basis or guiding principle for the division
  – For example you could subdivide the subject matter into two groups:
    problem that arise in a Software company when handling international
    projects and the problems that arise when dealing with local projects.
• When dividing a whole into its parts, restrict yourself to one basis at a time
  – If you switch your analysis from one basis to another, you could get a mixed classification, which can confuse your analysis. For example if you are analyzing the sales of foreign projects versus the non-foreign projects, you could later analyze them on the basis of their nature, for example database, web development etc.
• Make sure that each group is separate and distinct
  – The groups have to be mutually exclusive or you will end up talking about the same item under two or more headings. For example dividing a population into male, female and teenage categories wont make sense as the groups overlap.
• Be through when listing all the components of a whole
  – For example it would be misleading to subdivide the engine the engine into parts without mentioning the piston. An important part of the whole would be missing making the whole picture unclear.

Preparing a preliminary Outline

• Organize your study by preparing an organized preliminary outline.

• As you go through the factoring process you might want to outline format to organize your ideas.
• In some cases, for example writing a short report, a few notes on a piece of paper might be enough.
• A detailed outline is definitely worth the effort when
  – You one of several people working on an assignment
  – Your investigation will be intensive and will involve many sources of data
  – You know from your past experience that the person requesting the study will revise the assignment during the course of the study
• Two widely used systems outlining are the alphanumeric and the decimal system.
• Use the same grammatical form for each group of item in your outline.
• This parallel construction enables the reader to see that the ideas are related.

Alphanumeric System

I. ______________________________
   A. ____________________________
   B. ____________________________
      1. ____________________________
      2. ____________________________
   C. ____________________________
II. ______________________________
   A. ____________________________
      1. ____________________________
         a. ____________________________
         b. ____________________________
      2. ____________________________
   B. ____________________________
Preparing a preliminary Outline

- When writing an outline you also choose between descriptive (topical) and formative (talking) headings.
- Informative outlines are generally more helpful than descriptive outlines.
- When you have completed your research however you might want to switch from a working outline to an outline that summarizes your findings.

Preparing a Work Plan

- Your next step in planning reports is to establish a work plan based on your preliminary outline.
  - A formal work plan might include the following items (the first two are very important)
    - Problem statement
    - Statement of purpose

Preparing a Pork Plan

- In addition to the previous two the following are important as well
  - Discussion of the sequence of tasks to be accomplished (including the sources of information, required experiments, restrictions of time etc)
  - Description of the end result that will result from the investigation
  - Review the project assignments, schedules, and resources management

Conducting the Research

- The value of the report is based on the quality of the information it is based on.
- Your next step is to gather information, and it is important to begin by getting organized.
- Research writing is done by consulting primary (first hand) and secondary (second hand) sources.
Reviewing Secondary sources

- Conduct secondary resource by locating information that has already been collected, usually in the form of books, periodicals and reports.
- Regardless of the amount of research you do, retain complete and accurate notes on the sources of all the material you collect.

Collecting Primary Data

- When the information you need is unavailable from secondary sources you will need to collect and interpret data yourself by doing primary research.
- The four main ways to collect primary data are by examining documents, observing things, surveying people and conducting experiments.
  - Documents
    - Documentary evidence and historical records are sources of primary data.
  - Observations
    - Observation applies your five senses and your judgment to investigation.
  - Surveys
    - Often the best way to obtain answers is to ask people who have relevant experience and opinions.
    - A formal survey is a way of finding out what a cross-section of people think about something.
    - A formal survey requires a number important decisions.

Surveys

- You should decide on the following key issues
  - Should you use face-to-face interviews, phone calls or printed questionnaires?
  - How many individuals should you contact to get the result?
  - What particular questions should you ask in order to get a valid picture?
- Two important research criteria include
  - Reliability
    - When the same results would be obtained when the research were repeated.
  - Validity
    - When the research measures what it is intended to measure.
- Developing an effective questionnaire requires care and skill
  - Provide clear instructions so that respondents know exactly how to fill the questionnaire.
  - Keep the questionnaire short and easy to answer.
  - Formulate questions that provide easily tabulated or analyzed answers.
Avoid questions that lead to a particular answer; they bias your survey.

Ask only one thing at a time. If you ask “Do you read book and magazines regularly?”, you are targeting only those people who do.

Avoid questions having vague or abstract words. Instead of asking “Are you frequently troubled by colds?” ask “How many colds did you have in the past six months?”

Pretest the questionnaire on a sample group to identify questions that are subject to misinterpretation.

Include a few questions that rephrase the previous questions, as a cross-check on the validity of the responses.

Remember that even under the best of circumstances you may not get more than 10-20 responses.

Analyzing and Interpreting Data

The fifth step to report writing is to analyze your results by calculating statistics, drawing reasonable conclusions, and if appropriate, developing a set of recommendations.

Calculating Statistics

Much of the information you collect in the research phase will be in numerical form. It must be manipulated, so that your readers can interpret its significance.

A USABILITY SURVEY
A BASIC USABILITY SURVEY

Calculating Statistics

- Averages
  - It is a single number representing a group of numbers.

- Trends
  - Trend analysis involves an examination of data over time so that patterns and relationships can be determined.

- Correlation
  - A correlation is a statistical relationship between two or more variables.
Drawing Conclusions
• Conclusions may be based on a combination of facts, value judgments, and assumptions.
• Check the logic that underlies your conclusions.
• The best conclusion is often the one that gains the most support.

Developing Recommendations
• Good recommendations are
  – Practical
  – Acceptable to readers
  – Explained in enough detail so that the readers can take action

Preparing the Final Outline
• The final outline should be geared to your purpose and the audience’s probable reaction.
• Visual aids: illustration in tabular graphic, schematic, or pictorial form.
• Use visual aids to simplify, clarify and emphasize important information.

In this lecture you learnt to
• Define the problem to be solved by studying and outlining the issues to be analyzed.
• Identify and analyze the issues that have to be analyzed during your study.
• Prepare a work plan for conducting your investigation, planning the necessary steps, estimating their timing, and deciding on the sources of information required.
• Organize the research phase of the investigation, including the identification of secondary and primary sources of data.
• Draw sound conclusions and develop practical recommendations.
• Develop a final outline and visual aid plan for the report.